CLAIM AMENDMENTS

(pursuant to 37 C.F.R. 1.121)

Claim No.

1-93. (canceled)

94. (original)

A radio frequency power generator to provide power to a load comprising:

a. a supply of power;

b. a substantially sinusoidal AC drive element with a drive amplitude;

c. multiple switches responsive to said AC drive element and said supply of power wherein said multiple switches establish a alternating power output at a frequency;

d. direct drive bias alteration circuitry to which said AC drive element is responsive and which is responsive to said drive amplitude; and

e. a load which is responsive to said alternating power output.

95. (currently amended)

A radio frequency power generator as described in claim 94 wherein said multiple switches comprise two switches which operate in conjunction to establish said alternating power output.

96. (currently amended)

A radio frequency power generator as described in claim 95 wherein said two switches comprise a half bridge configuration.

97. (currently amended)

A radio frequency power generator as described in claim 96 wherein said two switches are sequentially operated and act to create transition events in between either switch being in a conductive state, wherein each of said transition events has a transition period, and wherein said direct control network controls said drive bias alteration

circuitry to maintain the duration of said transition period.

98. (currently amended)

A radio frequency power generator as described in claim_96 wherein said drive bias alteration circuitry comprises a drive bias alteration circuit for each of said switches, and wherein said direct control network comprises a direct control network for each of said switches.

99. (currently amended)

A radio frequency power generator as described in claim_97 wherein said two switches each establish a conduction angle, and wherein said direct control network maintains said conduction angles.

100. (currently amended)

A radio frequency power generator as described in claim_94 wherein said direct drive bias alteration circuitry comprises:

a. voltage divider circuitry; and

b. at least one diode element.

101. (currently amended)

A radio frequency power generator as described in claim_99 and further comprising constant output voltage circuitry which is responsive to said alternating power output of said multiple switches.

102. (currently amended)

A radio frequency power generator as described in claim_101 and further comprising constant trajectory circuitry which is also responsive to said alternating power output of said multiple switches.

103. (currently amended)

A radio frequency power generator as described in claim_102 and further comprising energy maintenance circuitry which is also responsive to said alternating power output of said multiple switches.

104. (currently amended)
A radio frequency power generator as described in claim_103 and further comprising stabilizing circuitry which is also responsive to said alternating power output of said multiple switches.

105. (currently amended)
A radio frequency power generator as described in claim_101, 102, ~~102,~~ 103, or 104 wherein said multiple switches have output capacitance, and wherein said circuitry is tuned to coordinate with the frequency of said alternating power output and output capacitance.

106. (currently amended)
A radio frequency power generator as described in claim_105 wherein said substantially sinusoidal AC drive element comprises a high frequency driver, and wherein said multiple switches establish a high frequency alternating power output.

107. (currently amended)
A radio frequency power generator as described in claim_106 wherein said direct control network comprises a network with no feedback system.

108. (original)
A method of generating radio frequency power to provide power to a load comprising the steps of:

a. supplying power;

b. inverting said power through multiple switches to establish an alternating power output;

c. substantially sinusoidally driving said switches with a drive amplitude and utilizing a drive bias to create an alternating power output;

d. directly altering said drive bias through circuitry which is responsive to said drive amplitude; and

e. powering a variable load responsive to said alternating power output;

109. (currently amended)

A method of generating radio frequency power to provide power to a load as described in claim_108 wherein said step of inverting said power through multiple switches to establish an alternating power output comprises the step of sequentially operating two switches to create transition events in between either switch being in a conductive state in a manner which is responsive to said step of directly controlling said drive bias through a network to which said drive bias is responsive.

110. (currently amended)

A method of generating radio frequency power to provide power to a load as described in claim_109 wherein each switch has a drive bias, and wherein said step of substantially sinusoidally driving said switches utilizing a drive bias to create an alternating power output comprises the step of directly controlling the drive bias of each switch.

111. (currently amended)

A method of generating radio frequency power to provide power to a load as described in claim_108 and further comprising the steps of:

a. establishing a constant output voltage through circuitry which is responsive to said alternating power output of said switch;

b. establishing a constant trajectory through circuitry which is also responsive to said alternating power output of said switch;

c. maintaining component supply energy through circuitry which is also responsive to said alternating power output of said switch; and

d. stabilizing said alternating power output through circuitry which is also

responsive to said alternating power output of said switch.

112. (currently amended)

A method of generating radio frequency power to provide power to a load as described in claim_111 wherein said switches have output capacitance, and further comprising the step of tuning said circuitry to said frequency of operation and said output capacitance.

113. (currently amended)

A method of generating radio frequency power to provide power to a load as described in claim_112 wherein said step of substantially sinusoidally driving said switches utilizing a drive bias to create an alternating power output comprises the step of high frequency driving said switch to create a high frequency alternating power output

114. (currently amended)

A system as described in claim ~~59, 44, 83,~~ 94~~, or 28~~ wherein said frequency driver comprises a frequency driver operating at a frequency selected from a group consisting of: a frequency greater than at least about 300 kHz, a frequency greater than at least about 500 kHz, a frequency greater than at least about 1 MHz, a frequency greater than at least about 3 MHz, a frequency greater than at least about 10 MHz, and a frequency greater than at least about 30 MHz.

115. (canceled)

116. (currently amended)

A system as described in claim ~~48 or~~ 94 wherein said variable load is capable of a rapid current demand which rises at a level selected from a group consisting of: at least about 0.2 amperes per nanosecond, at least about 0.5 amperes per nanosecond, at least about 1 ampere per nanosecond, at least about 3 amperes per nanosecond, at least about 10 amperes per nanosecond, and at least about 30 amperes per nanosecond.

117. (currently amended)

A system as described in claim ~~59, 44, 83, or~~ 94 wherein said network comprises a fast acting response network.

118. (original)

A system as described in claim 117 wherein said fast acting response network comprises a network having an effective capacitance selected from a group consisting of: less than about 0.3 millifarads, less than about 0.5 millifarads, less than about 1 millifarads, less than about 3 millifarads, less than about 10 millifarads.

119. (original)

A system as described in claim 117 wherein said fast acting response network comprises a response network which is capable of reacting within a period of time selected from a group consisting of:

- less than about a period of a Nyquist frequency,
- less than about two and a half times a period of a Nyquist frequency,
- less than about five times a period of a Nyquist frequency,
- less than about ten times a period of a Nyquist frequency,
- less than about twice a period of said alternating power output,
- less than about four times a period of said alternating power output,
- less than about 200 nanoseconds,
- less than about 500 nanoseconds,
- less than about 1000 nanoseconds, and
- less than about 2000 nanoseconds.

120. (currently amended)

A system as described in claim ~~59, 44, 83,~~ 94, ~~or 28~~ wherein said variable load comprises a load operating at a nominal DC voltage selected from a group consisting of: less than about 2 volts, less than about 1.8 volts, less than about 1.5 volts, less than about 1.3 volts, less than about 1 volt, and less than about 0.4 volts.

121. (original)

A system as described in claim 120 wherein said load comprises a load operating at a maximum current selected from a group consisting of: more than about 15 amperes, more than about 20 amperes, and more than about 50 amperes.

122. (currently amended)

A system as described in claim ~~59, 44, 83, or~~ 94 wherein said network comprises a high efficiency response network.

123. (original)

A system as described in claim 122 wherein said high efficiency response network comprises a response network having an efficiency selected from a group consisting of: at least about 80%, at least about 85%, at least about 90%, at least about 95%, at least about 98% and at least about 99%.

124-133. (canceled)

134. (original)

A system as described in claim 117 wherein said network comprises a network with no feedback system.

135-221. (canceled)

222. (new)

A high frequency power generator to provide power to a load comprising:

a. a supply of power;

b. a high frequency driver;

c. at least one switch responsive to said high frequency driver and said supply of power, having a body diode feature, wherein said at least one switch establishes a high frequency alternating power output;

d. a variable load which is responsive to said high frequency alternating power output; and

e. a passive conduction prevention response network which is responsive to said high frequency alternating power output of said switch and which prevents said body diode feature from transitioning to a conduction state, said network comprising:

    i. constant output voltage circuitry;

    ii. constant trajectory circuitry;

    iii. a drive bias alteration circuitry to which said driver is responsive and having a control input; and

    iv. a direct control network which provides the control input to said drive bias alteration circuitry.